

HEALTH & SAFETY: ASPIRATION PREVENTION

“Management of Gastric Residuals”

BQIS/Outreach Fact Sheets provide a general overview on topics important to supporting an individual's health and safety and to improving their quality of life. This document provides general information on the topic and is not intended to replace team assessment, decision making or medical advice. This is the eighth of ten Fact Sheets regarding Aspiration Prevention.

Objectives

Individuals will gain an understanding of the need to measure residuals and how this practice contributes to the overall prevention of aspiration.

Definitions

Gastric Residual: Food, liquid or material from a previous feeding left in the stomach at the start of the next feeding.

Continuous Feeding: Continuous drip feeding which may be delivered without interruption for an unlimited period of time each day. It is best to limit feeding to 18 hours or less or as ordered by the physician.

Bolus Feeding: A set amount of feeding usually delivered four to eight times per day; each feeding lasting about 15 to 30 minutes.

Facts

- A major nursing responsibility to prevent aspiration in persons who receive nutrition through tubes is assessing for the rate of gastric emptying. This is done by measuring the amount of gastric contents at regular intervals during continuous tube feedings or prior to each intermittent feeding.
- High gastric residual volumes (RV) increase the risk for pulmonary aspiration (the most severe complication of tube feedings).
- Excessive accumulation of feeding formula and gastric secretions causes distention and greatly increases the potential for regurgitation and vomiting with subsequent aspiration of the gastric contents into the lung.
- The risk for potential aspiration from a massively distended stomach is much greater than is the risk of a clogged, improperly handled tube.
- Risk factors most commonly associated with aspiration in tube-fed persons are:
 - Depressed level of consciousness
 - Lying flat in bed
 - Impaired cough or gag reflex

- Vomiting, regurgitation, reflux
- Inadequate gastric emptying
- Increased gastric residual volume
- In a study conducted by Breach & Saldanha, 1988 it was reported that gastric residual volumes in excess of 150 ml occurred in less than 30% of the patients studied.
- Current research gives the most frequently cited values for defining excessive gastric residual volumes in adults as 100 mls or 1.5 times the hourly rate. However, these values are based on opinion. Therefore it is necessary for the team to meet and discuss the parameters with the physician that will be implemented in their environment. Factors such as stomach size, skeletal integrity and formation, and past history should be considered.

Recommended Actions and Prevention Strategies

1. Monitor for Excessive Gastric Residual Volume in Continuously Fed Persons:
 - Gastric residual value (RV) should be checked every 4 to 6 hours and feedings held for 1 hour if the RV is 1.5 times the hourly rate or as directed, then rechecked at a predetermined time.
 - For a RV that continues to exceed 1.5 times the hourly rate, the feeding should be held, a gastrointestinal evaluation should be performed and the physician notified.
2. Monitor for Excessive Gastric Residual Volume in Intermittently Fed Persons:
 - Gastric residual value (RV) should be checked prior to each administration and held 1 hour for a RV greater than 100 mls.
 - The feedings should be discontinued and the physician should be notified if RVs are still greater than 100 mls after a one hour recheck. If the RV is below 100 mls then the feeding may be resumed.
3. Elevate head of bed as determined appropriate for the individual. Current research findings indicate that it is reasonable to elevate the head of the bed 30 to 45 degrees to minimize the risk for aspiration. However, this should be individualized as not everyone may be able to achieve this degree of elevation.
4. Implement elevation of the individual to the degree as determined appropriate not only during feedings but during all aspects of the individual's daily routine.
5. Perform tube placement checks prior to bolus feedings or at least every 8 hours if continuous feeding. Tubes can be dislodged or migrate.
6. Follow agency protocol for administering tube feedings and competency-based training.

Learning Assessment

Questions that can be used to verify a person's competency in the material contained in this Fact Sheet:

1. Risk factors commonly associated with aspiration in tube fed individuals includes:
 - A. High level of alertness
 - B. Decreased level of consciousness
 - C. Lying flat in bed
 - D. Both B and C
2. True or False: An excessive accumulation of feeding formula and gastric secretions causes distention and greatly increases the potential for regurgitation and vomiting.
3. True or False: Bolus feedings may be delivered without interruption for an unlimited period of time each day.
4. True or False: A study suggested that most individuals carry a residual value of greater than 150 ml.
5. True or False: Head of bed elevation is only important during or right after a feeding is administered.

References

- Hamaoui, E., & Kodsi, R. (1997). Complications of enteral feeding and their prevention. In J.L. Rombeau, & R.H. Rolandelli (Eds.), *Clinical nutrition: Enteral and tube feeding* (3rd ed., pp. 554-574). Philadelphia: W.B. Saunders Company.
- Flynn, K., Norton, L., & Fisher, R. (1987). Enteral tube feeding: Indications, practices and outcomes. *Image*, 19(1), 16.
- Powell, K.S., Marcuard, S.P., Farrior, E.S., & Gallagher, M.L. (1993). Aspirating gastric residuals causes occlusion of small-bore feeding tubes. *Journal of Parenteral and Enteral Nutrition*.

Related Resources

Aspiration Prevention Series Fact Sheets: “Food Texture and Fluid Consistency Modification”, “Management of Constipation”, “Management of Oral Health”, “Dysphagia”, “Modified Barium Swallow Study/ Videofluoroscopy”, “Management of Gastroesophageal Reflux Disease (GERD)”, “Positioning”, “Feeding Tubes and Feeding/Medication Administration Options”, and “Choice Considerations Relevant to the Use of Enteral Nutrition”

“General Description of Diet Textures” Handout

Learning Assessment Answers

1. D
2. True
3. False
4. False
5. False

Outreach Services

outreach@fssa.in.gov • DDRSOutreach.IN.gov

As a service for persons supporting individuals with intellectual/developmental disabilities, BQIS/ Outreach developed the Outreach Fact Sheet Library. The information provided is designed to enhance the understanding of the topic and does not replace other professional or medical instructions or individually developed plans. For more fact sheets and information, please visit DDRSOutreach.IN.gov.



Indiana Family & Social Services Administration
Division of Disability & Rehabilitative Services
Bureau of Quality Improvement Services

OR-FS-HS-AP-25(12-15-09)